

We claim:-

1. A copper(I) formate complex of the formula  $L_nCu(HCOO) \cdot x HCOOH$ , where  $x$  is from 0 to 10,  $n$  is 1, 2, 3 or 4 and the  $n$  ligands  $L$ , independently of one another, are each one of the following ligands:
  - a phosphane of the formula  $R^1R^2R^3P$ ;
  - a phosphite of the formula  $(R^1O)(R^2O)(R^3O)P$ ;
  - an isocyanide of the formula  $R^1-NC$ ;
  - an alkene of the formula  $R^1R^2C=CR^3R^4$ ; or
  - an alkyne of the formula  $R^1C\equiv CR^2$ ;where  $R^1$ ,  $R^2$ ,  $R^3$  and  $R^4$ , independently of one another, are hydrogen, a linear or branched, optionally partly or completely fluorinated alkyl, aminoalkyl, alkoxyalkyl, hydroxyalkyl, phosphinoalkyl or aryl radical of one to 20 carbon atoms;  
with the exception of triphenylphosphinocopper(I) formate and 1,1,1-tris(diphenylphosphinomethyl)ethanecopper(I) formate.
2. A copper(I) formate complex according to claim 1, wherein  $n$  is 2 or 3.
3. A copper(I) formate complex according to claim 1 or 2, wherein  $L$  is selected from the group consisting of trimethylphosphine, triethylphosphine, triisopropylphosphine, tri-n-butylphosphine, triisobutylphosphine, tricyclopentylphosphine, trimethoxyphosphine, triethoxyphosphine, triisopropoxyphosphine, tri(2,2,2-trifluoroethoxy)phosphine, isopropyl isocyanide, n-butyl isocyanide, tert-butyl isocyanide and cyclohexyl isocyanide.
4. A copper(I) formate complex according to claim 3, wherein  $L$  is tri-n-butylphosphine.
5. A copper(I) formate complex according to claim 4, wherein  $x$  is 1.
6. A process for the preparation of a copper(I) formate complex defined in any of claims 1 to 5 by reacting copper(I) formate with ligand  $L$  and optionally formic acid.

7. A process according to claim 6, wherein the copper(I) formate is obtained in a first step from copper(II) formate, metallic copper and formic acid and is not isolated before addition of the ligand L.
8. A process for the preparation of a copper(I) formate complex defined in any of claims 1 to 5 by reacting a copper(I) halide complex of the formula  $L_nCu(I)X$ , where X is a halide and L and n have the meanings defined in claim 1, with formic acid and then with a base.
9. A process for depositing metallic copper on a substrate by application of a copper(I) formate complex defined in any of claims 1 to 5 to the substrate and thermal decomposition of the copper(I) formate complex at a temperature of at least 80°C.
10. A process according to claim 9, wherein the copper(I) formate complex is deposited from the gas phase and simultaneously decomposed.
11. A process according to claim 9, wherein the substrate is sprayed with a solution of the copper(I) formate complex and the latter is simultaneously or subsequently decomposed.
12. A process according to claim 9, wherein a solution of the copper(I) formate complex is applied to a rotating substrate and the copper(I) formate complex is simultaneously or subsequently decomposed.